

ELECTROSURGICAL ACCESSING OF TISSUE WITH CONTROLLED COLLATERAL THERMAL PHENOMENA

CROSS-REFERENCE TO RELATED APPLICATIONS

11/10/06
5 The present application is a continuation-in-part of application Serial No. 10/235,131, filed September 5, 2002 ^(now abandoned) entitled "Method and Apparatus for Positioning a Tissue Recovery Instrument in Confronting Adjacency With a Target Tissue Volume" by Eggers, et al., which, in turn, is a continuation-in-part of application Serial No. 09/904,396 filed July 12, 2001 now U. S. Patent No. 6,471,659, entitled "Minimally Invasive Intact Recovery of Tissue", by Eggers, et al., which, in turn, is a continuation-in-part of application of Serial No. 09/472,673, filed December 27, 1999, now U. S. Patent No. 6,277,083 by Eggers, et al., issued August 21, 2001 and entitled
10 "Minimally Invasive Intact Recovery of Tissue".

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH

Not applicable.

15 BACKGROUND OF THE INVENTION

The employment of high frequency current for the purpose of carrying out surgical cutting and/or coagulation has represented a significant surgical modality since its promotion in the 1920's by Cushing and Bovie. Electrosurgical cutting is achieved by disrupting or ablating tissue in immediate apposition to an excited cutting
20 electrode, i.e., slightly spaced before it so as to permit the formation of a cutting arc. Continuous sine waveforms generally are employed to carry out the cutting function wherein tissue cells encountered by the electrode arc are vaporized. An advantage of this electrosurgical cutting procedure over the use of a cold scalpel, at least below the skin layer, resides both in an ease of cutting and a confinement of tissue damage,
25 in the absence of collateral thermal phenomena, to very small and shallow regions. In this regard, cells adjacent the cutting electrode arc are vaporized and cells only a few layers deeper essentially are undamaged.

Inasmuch as these electrosurgical cutting and coagulation systems, for the most part, have been utilized in conjunction with what may be deemed "open" surgical
30 procedures, the noted collateral thermal damage essentially has been dismissible. For instance, elevated temperature fluid including gases, liquid and steam generated by